



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,115	12/22/2003	Kazunobu Maruo	28682/38519	8485
4743 7590 11/25/2009 MARSHALL, GERSTEIN & BORUN LLP 233 SOUTH WACKER DRIVE 6300 SEARS TOWER CHICAGO, IL 60606-6357			EXAMINER NERANGIS, VICKIE MARIE	
			ART UNIT	PAPER NUMBER
			1796	
			MAIL DATE	DELIVERY MODE
			11/25/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/743,115

Applicant(s)

MARUO ET AL.

Examiner

Vickey Nerangis

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-14 and 18-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-14 and 18-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. All outstanding rejections, except for those maintained below, are withdrawn in light of applicant's amendment filed on 7/10/2009.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.
3. The new grounds of rejection set forth below are necessitated by applicant's amendment filed on 7/10/2009. In particular, claims 1, 13, and 25 have been amended to exclude prior sorption of an onium ion and/or silane coupling agent to layered phyllosilicate material. Thus, the following action is properly made final.

Claim Rejections - 35 USC § 112

4. Claims 13, 14, 18, and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 13, the term "the layered phyllosilicate silicate material" lacks antecedent basis.

With respect to claims 14, 18, and 19, they are rejected for being dependent on a rejected claim.

Claim Rejections - 35 USC §102/103

5. Claims 1-6, 8-12 and 20-39 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lan et al (US 6,232,388, cited on IDS dated 2/21/2006).

The rejection is adequately set forth in paragraph 6 of Office action mailed on 1/17/2007 and is incorporated here by reference.

Claim Rejections - 35 USC § 103

6. Claims 1-6, 8-14, and 18-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barbee et al (US 6,384,121).

Barbee et al discloses a polymer/clay nanocomposite (exfoliated) comprising a layered material with a functionalized oligomer (abstract), wherein 20-99.5 wt % of an ammonium-functionalized oligomer is present based on oligomer and clay (i.e., layered material) (col. 14, lines 26-32) and MXD6 is the preferred oligomeric polyamide (col. 8, lines 27-31). Example 24 (col. 19, lines 40-59) contains an ammonium functionalized (i.e., protonated) MXD6 oligomer.

Barbee et al fails to disclose (i) layered material comprising MXD6 that has not been pretreated with onium ion and (ii) oligomer intercalants like claimed in claims 24 and 39.

With respect to (i), while Example 24 includes an onium ion-pretreated phyllosilicate, note col. 10, lines 61-67 which teaches that the clays used can be unmodified and therefore includes phyllosilicate that has not been pretreated with onium ion.

Given that Barbee et al discloses that the phyllosilicate can be unmodified onium ion when mixed with functionalized oligomer, it would have been obvious to one of ordinary skill in

the art to intercalate an unmodified phyllosilicate with functionalized oligomer and thereby provide an intercalate with an expansion of at least about 5 Angstroms. Case law holds that “nonpreferred disclosures can be used. A nonpreferred portion of a reference disclosure is just as significant as the preferred portion in assessing the patentability of claims.” See *In re Nehrenberg*, 280 F.2d 161, 126 USPQ 383 (CCPA 1960).

With respect to (ii), Barbee et al exemplifies MXD6 (Example 24) but does not teach the number of repeat units like claimed, however, note col. 9, lines 14-16 where Barbee et al teaches that the functionalized oligomeric polyamide has a molecular weight of 200-12000 which provides for the oligomeric formulae presently claimed.

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the presently claimed oligomers given that molecular weights taught by Barbee et al.

Response to Arguments

7. Applicant's arguments filed 7/10/2009 have been fully considered but they are not persuasive. Specifically, applicant argues (A) that Barbee et al fails to disclose that the phyllosilicate material is not pretreated with an onium ion spacing agent; (B) that by not adding an onium ion spacing agent prior to mixing phyllosilicate material with protonated oligomeric or polymeric intercalant better thermal properties are had;

With respect to argument (A), note col. 10, lines 61-67 which teaches that the clays used can be unmodified and therefore includes phyllosilicate that has not been pretreated with onium ion. Case law holds that “nonpreferred disclosures can be used. A nonpreferred portion of a

reference disclosure is just as significant as the preferred portion in assessing the patentability of claims.” See *In re Nehrenberg*, 280 F.2d 161, 126 USPQ 383 (CCPA 1960).

With respect to argument (B), the declaration filed on 7/10/2009 has been fully considered, however, it is insufficient to establish unexpected results because the examples are not a proper comparison to the prior art. Case law holds that comparative showings must compare the claimed subject matter with the closest prior art to be effective. See *In re Burckel*, 592 F.2d 1175, 1179, 201 USPQ 67, 71 (CCPA 1979). Specifically, the examples include only phyllosilicate intercalated with either onium ion spacing agents or the protonated oligomer intercalant. Given that the prior art of Barbee et al and Lan et al teach the use of other onium ion spacing agent and the protonated oligomer intercalant, the data is not a proper comparison to the prior art.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vickey Nerangis whose telephone number is (571) 272-2701.

The examiner can normally be reached on Monday - Friday, 8:30 a.m. - 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

vn

/Vickey Nerangis/
Primary Examiner, Art Unit 1796